

# Pressure Control Valves

## Back Pressure Regulators UV 3.9

### Millibar Control Valve



#### Technical Data

Connection DN	15 - 50
Connection G	1/2 - 2
Nominal Pressure PN	1 - 2,5
Inlet Pressure	0.01 - 1.1 bar
K <sub>vs</sub> -Value	0.2 - 28 m <sup>3</sup> /h
Temperature	130 °C
Medium	liquids and gases

#### Description

Self-acting back pressure regulators are simple control valves offering accurate control while being easy to install and maintain. They control the pressure upstream of the valve without requiring pneumatic or electrical control elements.

The UV 3.9 backpressure regulator is a spring-loaded diaphragm-controlled proportional control valve designed for very low inlet pressures. This bypass valve is manufactured from deep-drawn stainless steel featuring excellent corrosion resistance. The valve cone can be fitted with a soft or metallic seal.

The inlet pressure to be controlled is balanced across the valve seat by the force of the valve spring (set pressure). If the inlet pressure rises above the set pressure, the valve opens. With decreasing inlet pressure the valve control orifice reduces, when the pipeline is depressurised, the valve is closed. Rotating the adjusting screw clockwise increases the inlet pressure.

These valves are no shut-off elements ensuring a tight closing of the valve. In accordance with DIN EN 60534-4 and/or ANSI FCI 70-2 they may feature a leakage rate in closed position in compliance with the leakage classes III or V, optional IV:

Leakage class III (metal sealing cone) = 0.1 % K<sub>vs</sub> value

Leakage class IV (PTFE seal cone) = 0.01 % K<sub>vs</sub> value

Leakage class V (soft seal cone) =  $1.8 \times 10^{-5} \times \Delta p \times D^*$  [l/h]

\*D=seat diameter

#### Standard

- » all stainless steel construction

#### Options

- » for toxic or hazardous media: sealed spring cap complete with leakage line connection (incl. sealed adjusting screw). Must be installed with a leakage line capable of draining leaking medium safely and without pressure
- » various diaphragm and seal materials suitable for your medium
- » special connections:
  - Aseptic, ANSI or DIN flanges, welding spigots; other connections on request
- » special versions on request

Operating instructions, know how and safety instructions must be observed. All the pressure has always been indicated as overpressure. We reserve the right to alter technical specifications without notice.



#### K<sub>vs</sub> Values [m<sup>3</sup>/h] for Straight-way Valve

G 1/2 DN 15	G 3/4 DN20	G 1 DN 25	G 1 1/4 DN 32	G 1 1/2 DN 40	G 2 DN 50
5	7	8	22	22	22

#### K<sub>vs</sub>-Values [m<sup>3</sup>/h] for angle and U-shaped valve

0.2	0.9	2.2	3.9	6	12	18	28
-----	-----	-----	-----	---	----	----	----

#### Setting Ranges [bar], Nominal Pressure

0.01 - 0.025	0.02 - 0.06	0.05 - 0.12	0.10 - 0.25	0.2 - 0.5	0.4 - 1.1
PN 0.1	PN 0.1	PN 0.2	PN 0.4	PN 1	PN 2.5

# Pressure Control Valves

## Back Pressure Regulators UV 3.9

### Millibar Control Valve



Materials		
Temperature	80 °C	130 °C
Body	CrNiMo-steel	CrNiMo-steel
Spring Cap		
Internals		
Adjusting Screw		
Spring	CrNi-steel	CrNi-steel
Valve Seal	CrNiMo-steel optional EU	CrNiMo-steel optional FPM, EPDM, PTFE
Diaphragm	CR	FPM optional EPDM
Protection Foil for Diaphragm	PTFE (option)	PTFE (option)

Dimensions [mm]							
setting range bar	size	nominal diameter					
		G 1/2 DN 15	G 3/4 DN 20	G 1 DN 25	G 1 1/4 DN 32	G 1 1/2 DN 40	G 2 DN 50
all	A	85	91	85	130	145	185
all	A <sub>1</sub>	130	150	160	180	200	230
all	B	85	85	85	100	100	100
all	C <sub>1</sub>	105	105	105	125	125	125
all	C <sub>2</sub>	250	250	250	250	250	250
0.4 - 1.1	ø D	175	175	175	175	175	175
0.2 - 0.5	ø D	220	220	220	220	220	220
0.1 - 0.25	ø D	270	270	270	270	270	270
0.05 - 0.12	ø D	360	360	360	360	360	360
0.02 - 0.06	ø D	500	500	500	500	500	500
0.01 - 0.025	ø D	500	500	500	500	500	500

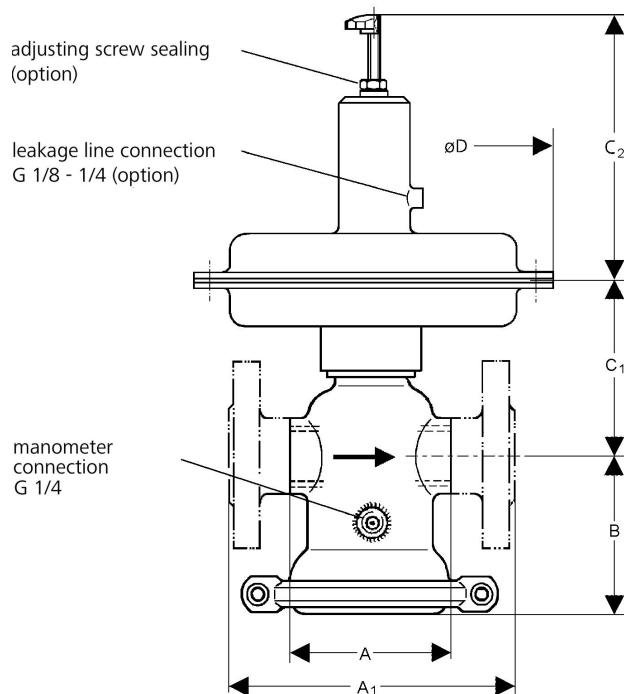
Weights [kg]							
setting range bar	nominal diameter G						
	1/2	3/4	1	1 1/4	1 1/2	2	
0.4 - 1.1	6	6	6	7	7	7	
0.2 - 0.5	7	7	7	8	8	8	
0.1 - 0.25	9	9	9	10	10	10	
0.05 - 0.12	14	14	14	15	15	15	
0.02 - 0.06	15	15	15	16	16	16	
0.01 - 0.025	15	15	15	16	16	16	

Weights[kg]							
setting ranges bar	nominal diameter DN						
	15	20	25	32	40	50	
0.4 - 1.1	8	8	8	11	11	11	
0.2 - 0.5	9	9	9	12	12	12	
0.1 - 0.25	11	11	11	14	14	14	
0.05 - 0.12	16	16	16	19	19	19	
0.02 - 0.06	17	17	17	20	20	20	
0.01 - 0.025	17	17	17	20	20	20	

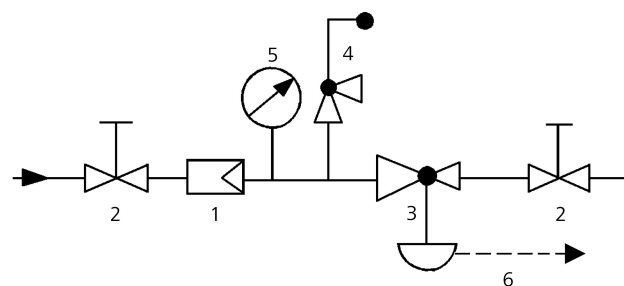
Customs Tariff Number
84814010

Special designs on request.  
The pressure has always been indicated as overpressure.  
Mankenberg reserves the right to alter or improve the designs or specifications of the products described herein without notice.

### Dimensional Drawing



### Recommended Installation



- 1 Strainer
  - 2 Shutoff valves
  - 3 Backpressure Regulator
  - 4 Safety Valve
  - 5 Pressure Gauge
  - 6 Leakage Line G 1/8 - 1/4 (option)
- use MANKENBERG-Products

# Pressure Control Valves

## Back Pressure Regulators UV 3.9

### Millibar Control Valve



Materials		
Temperature	80 °C	130 °C
Body	CrNiMo-steel	CrNiMo-steel
Spring Cap		
Internals		
Adjusting Screw		
Spring	CrNi-steel	CrNi-steel
Valve Seal	CrNiMo-steel optional EU	CrNiMo-steel optional FPM, EPDM or PTFE
Diaphragm	CR	FPM optional EPDM
Protection Foil for Diaphragm	PTFE (option)	PTFE (option)

Dimensions [mm]							
setting range bar	size	nominal diameter					
		G 1/2 DN 15	G 3/4 DN 20	G 1 DN 25	G 1 1/4 DN 32	G 1 1/2 DN 40	G 2 DN 50
0.4 - 1.1	A	50	45	-	-	-	-
	C <sub>1</sub>	95	100	-	-	-	-
	ø D	175	175	-	-	-	-
0.2 - 0.5	A	55	55	55	-	-	-
	C <sub>1</sub>	95	100	105	-	-	-
	ø D	220	220	220	-	-	-
0.1 - 0.25	A	75	75	75	75	75	-
	C <sub>1</sub>	95	100	105	110	115	-
	ø D	270	270	270	270	270	270
0.05 - 0.12	A	90	90	90	90	90	90
	A <sub>1</sub>	125	125	125	-	-	-
	C <sub>1</sub>	95	100	105	110	115	120
	C <sub>2</sub>	115	120	120	-	-	-
	ø D	360	360	360	360	360	360
0.01 - 0.025 0.02 - 0.06	A	80	80	80	80	80	80
	A <sub>1</sub>	150	150	150	180	180	180
	C <sub>1</sub>	95	100	105	110	115	120
	C <sub>2</sub>	115	120	120	125	130	135
	ø D	500	500	500	500	500	500
alle	C <sub>3</sub>	500	500	500	500	500	500

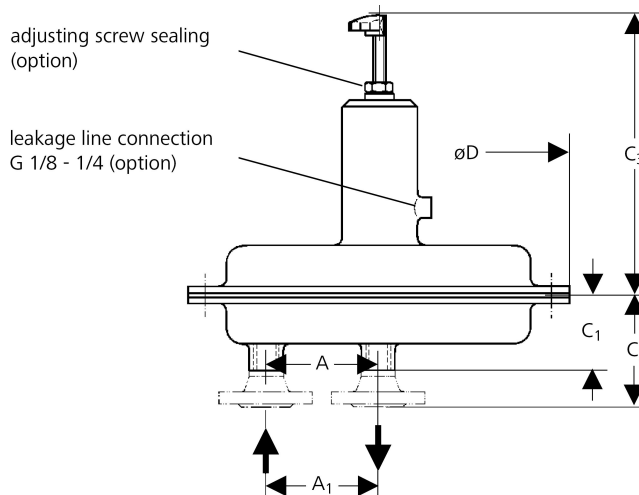
Weights[kg]						
setting range bar	nominal diameter G					
	1/2	3/4	1	1 1/4	1 1/2	2
0.4 - 1.1	4.5	4.5	-	-	-	-
0.2 - 0.5	6	6	6	-	-	-
0.1 - 0.25	8	8	8	8	8	-
0.05 - 0.12	12.5	12.5	12.5	12.5	12.5	12.5
0.02 - 0.006	13	13	13	13	13	13
0.01 - 0.025	13	13	13	13	13	13

Weights[kg]						
setting range bar	nominal diameter DN					
	15	20	25	32	40	50
0.4 - 1.1	-	-	-	-	-	-
0.2 - 0.5	-	-	-	-	-	-
0.1 - 0.25	-	-	-	-	-	-
0.05 - 0.12	14	14.5	15	-	-	-
0.02 - 0.06	15.5	16	16.5	17.5	18	19.5
0.01 - 0.025	15.5	16	16.5	17.5	18	19.5

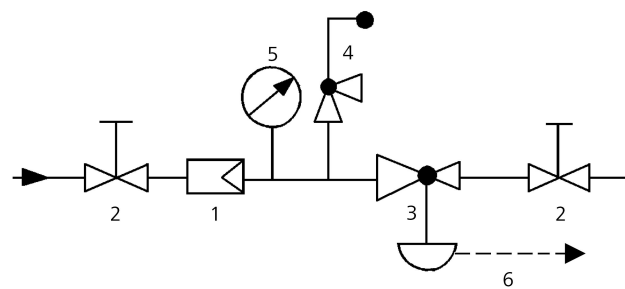
**Customs Tariff Number**  
84814010

Special designs on request.  
The pressure has always been indicated as overpressure.  
Mankenberg reserves the right to alter or improve the designs or specifications of the products described herein without notice.

### Dimensional Drawing



### Recommended Installation



- 1 Strainer
  - 2 Shutoff valves
  - 3 Backpressure Regulator
  - 4 Safety Valve
  - 5 Pressure Gauge
  - 6 Leakage Line G 1/8 - 1/4 (option)
- use MANKENBERG-Products

# Pressure Control Valves

## Back Pressure Regulators UV 3.9

### Millibar Control Valve



Materials		
Temperature	80 °C	130 °C
Body	CrNiMo-steel	CrNiMo-steel
Spring Cap		
Internals		
Adjusting Screw		
Spring	CrNi-steel	CrNi-steel
Valve Seal	CrNiMo-steel optional EU	CrNiMo-steel optional FPM, EPDM or PTFE
Diaphragm	CR	FPM optional EPDM
Protection Foil for Diaphragm	PTFE (option)	PTFE (option)

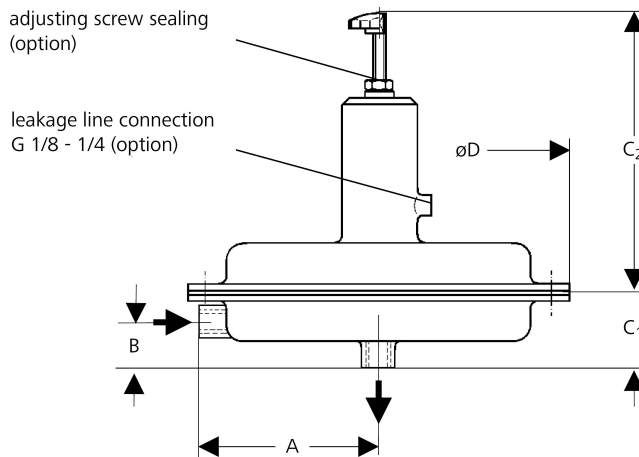
Dimensions [mm]		
setting range bar	size	G 1/2
0.2 - 0.5	A	100
	B	65
	C <sub>1</sub>	95
	ø D	220
0.1 - 0.25	A	126
	A <sub>1</sub>	65
	C <sub>1</sub>	95
	ø D	270
0.05 - 0.12	A	167
	A <sub>1</sub>	65
	C <sub>1</sub>	95
	ø D	360
alle Bereiche	C <sub>2</sub>	250

Weights [kg]	
setting range bar	G 1/2
0.2 - 0.5	6
0.1 - 0.25	8
0.05 - 0.12	12.5

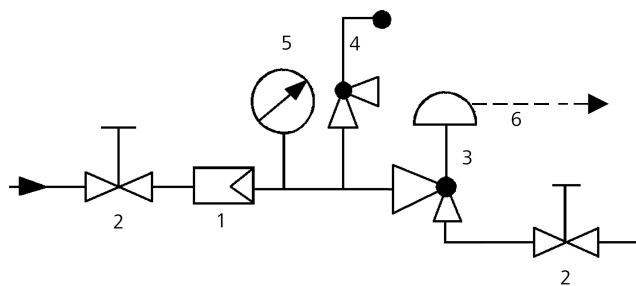
**Customs Tariff Number**  
84814010

Special designs on request.  
The pressure has always been indicated as overpressure.  
Mankenberg reserves the right to alter or improve the designs or specifications of the products described herein without notice.

### Dimensional Drawing



### Recommended Installation



- 1 Strainer
  - 2 Shutoff valves
  - 3 Backpressure Regulator
  - 4 Safety Valve
  - 5 Pressure Gauge
  - 6 Leakage Line G 1/8 - 1/4 (option)
- use MANKENBERG-Products